



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Don Carl Powell et al.
Serial No : 10/039,517
Filed : January 3, 2002
Title : **SYSTEM AND DEVICE INCLUDING BARRIER LAYER**
Docket : MIO 0059 V2
Examiner : D. Le
Art Unit : 2818
Conf. No : 3647

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

CERTIFICATE OF MAILING

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Agent

Reg. No. 38,769

Sir:

PETITION FROM REQUIREMENT FOR RESTRICTION UNDER 37 CFR 1.144

Applicants hereby petition the Commissioner to review and withdraw the restriction requirement made in the above-identified application on February 19, 2003. Enclosed is a check in the amount of \$130.00 for payment of the fee required by 37 CFR §1.17(h).

A restriction requirement was made in the above-identified application on February 19, 2003 (Paper No. 5). In the restriction requirement, the Examiner identified the following 16 species from which applicants were required to elect:

- a) Species I, e.g. claims 30, 48: Capacitor device with nitride silicon-containing barrier layer.
- b) Species II, e.g. claim 31: Computer system. See Fig. 5.
- c) Species III, e.g. claims 32-39, 40, 41 and 42: Device with a silicon-containing barrier.
- d) Species IV, e.g. claims 43-47: A semiconductor device with transistor structure having a silicon-containing barrier layer.
- e) Species V, e.g. claim 49: A semiconductor device having a silicon-containing barrier layer containing no metal forming from silicon source.

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- f) Species VI, e.g. claim 50: A semiconductor device having a silicon-containing barrier layer containing no metal forming from silazane source.
- g) Species VII, e.g. claim 51: A semiconductor device with transistor structure having a barrier layer containing no metal.
- h) Species VIII, e.g. claim 52: A capacitor device with barrier layer containing no metal using rapid thermal nitridation with a nitridizing reactant.
- i) Species IX, e.g. claims 53-60: Capacitor device with nitride silicon-containing barrier layer from silicon source.
- j) Species X, e.g. claims 61-64: A device having a precursor layer with a metal-free silicon-containing material formed over at least a portion of first semiconductor device.
- k) Species XI, e.g. claim 65: A device having a precursor layer with a metal-free silicon-containing material formed over at least a portion of silicon substrate.
- l) Species XII, e.g. claim 66: A semiconductor device a precursor layer metal-free silicon-containing material forming from silicon source.
- m) Species XIII, e.g. claim 67: A semiconductor device having a precursor layer metal-free silicon-containing material forming from silazane source.
- n) Species XIV, e.g. claims 68-71: A semiconductor device with transistor structure having a metal-free containing precursor layer.
- o) Species XV, e.g. claims 72-73: A capacitor having a precursor layer forming over an electrode from a metal-free silicon-containing material from a silazane source.
- p) Species XVI, e.g. claim 74: A capacitor having a precursor layer forming over an electrode from a metal-free silicon-containing material from a silane source.

Applicants responded to the restriction requirement on March 11, 2003 by electing claims 32-42 with traverse. The restriction requirement was made final in an Office Action mailed June 4, 2003 (Paper No. 8). Applicants subsequently requested reconsideration of the final restriction requirement in an amendment filed July 14, 2003.

While the Examiner has contended that the identified species are mutually exclusive, applicants submit that the Examiner has provided no basis or reasoning for his conclusions. According to the MPEP §816, "[t]he particular reasons relied on by the examiner for holding that

the inventions as claimed are either independent or distinct should be concisely stated. A mere statement of conclusion is inadequate. The reasons upon which the conclusion is based should be given." The only reasoning offered by the Examiner is a comparison of the preambles of several of the claims, for example, a comparison of species I, claims 30 and 48 (capacitor device) with that of species II claim 31 (computer system) (see Paper No. 8, page 4). However, as applicants previously pointed out to the Examiner, the claims in species I and II recite similar subject matter. Species I, claims 30 and 48 recite, *inter alia*, a "primarily nitride silicon-containing barrier layer" comprising a "silicon-containing material" (claim 30) and "a silicon-containing material" that has been reacted "to form a barrier layer (claim 48)." Species II, claim 31 recites, *inter alia*, "a silicon-containing barrier layer comprising a silicon-containing material." These claims are clearly not mutually exclusive as they share commonly-recited features.

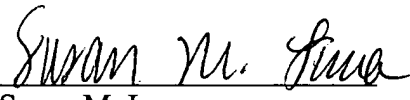
The Examiner further compared the preamble of species III, claims 32-39, 40, 41, 42 (device with a silicon-containing barrier) with the preamble of species IV, claims 43-47 (a semiconductor device with transistor structure having a silicon-containing barrier layer). Again, those claims recite common subject matter. The claims in species III recite, *inter alia*, "a barrier layer formed from a silicon source" (claim 32), and a "silicon-containing material" that "form[s] a barrier layer" (claims 40 and 42) while the claims in species IV recite, *inter alia*, "a silicon-containing material" that "form[s] the barrier layer" (claims 43-47).

As set forth in MPEP §806.03, restriction is improper where the claims are but different definitions of the same disclosed subject matter, varying in breadth or scope of definition. While applicants' claims may define the invention using words of difference scope, they still commonly recite the presence of a barrier layer formed from a silicon source. The Examiner appears to have relied on the different preambles of the claims as the basis for making the requirement, which is impermissible. See MPEP §806.04(e).

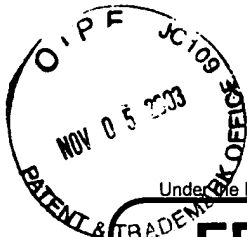
Applicants submit that restricted claims 30-31 and 43-74 in the application are presented in a form that is analogous to combination/subcombination product claims. The Examiner has failed to provide any basis or reasoning which demonstrates that the combination claims are patentable without the claimed subcombination.

Accordingly, applicants submit that the restriction requirement is improper and should be withdrawn. Applicants request examination of all pending claims.

Respectfully submitted,
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FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$ 130.00

Complete if Known

Application Number	10/039,517
Filing Date	January 3, 2002
First Named Inventor	Don Carl Powell
Examiner Name	D. Lee
Art Unit	2818
Attorney Docket No.	MIO 0059 V2/40509.179

METHOD OF PAYMENT (check all that apply)☒ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None☐ Deposit Account:Deposit
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☐ Charge fee(s) indicated below ☐ Credit any overpayments☐ Charge any additional fee(s) or any underpayment of fee(s)☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.**FEE CALCULATION****1. BASIC FILING FEE**

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1001	770	2001	385	Utility filing fee	
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	
SUBTOTAL (1)					(\$ -0-

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

		Extra Claims		Fee from below		Fee Paid
Total Claims	<input type="text"/>	-20** =	<input type="text"/>	X	<input type="text"/>	<input type="text"/>
Independent Claims	<input type="text"/>	- 3** =	<input type="text"/>	X	<input type="text"/>	<input type="text"/>
Multiple Dependent					<input type="text"/>	<input type="text"/>

Large Entity		Small Entity		Fee Description
Fee Code	Fee (\$)	Fee Code	Fee (\$)	
1202	18	2202	9	Claims in excess of 20
1201	86	2201	43	Independent claims in excess of 3
1203	290	2203	145	Multiple dependent claim, if not paid
1204	86	2204	43	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) (\$ -0-

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)**3. ADDITIONAL FEES**

Large Entity Small Entity

Fee Code	Fee (\$)	Fee Code	Fee (\$)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for <i>ex parte</i> reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1,005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	
1403	290	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,330	2453	665	Petition to revive - unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	130
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37 CFR 1.129(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify)

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$ 130.00

SUBMITTED BY

(Complete if applicable)

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Signature		Date	11/03/2003		

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